

# Quantitative Decision Making

## Research Areas

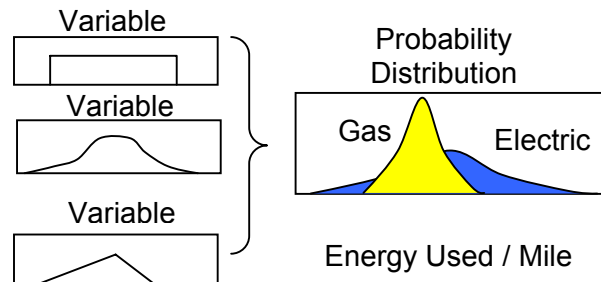
- Operations research
- Project management
- Decision analysis theory and methods
- Risk analysis theory and methodology
- Multiple criteria decision making

## Recent findings

Quantitative decision making tools can be applied to virtually any research area. AFIT researchers are using multiple criteria decision-making concepts to analyze the optimal organizational structure of RED HORSE units to improve contingency response and heavy construction capability. Results are expected to complement the ACC RED HORSE 2010 Strategic Study. Another active research area involves life cycle costing. AFIT researchers are developing a life cycle cost model to accurately predict and document environmental costs for new weapons systems.

Life cycle assessment accounts for all energy consumption and air/water emissions during all phases of a product or service (e.g., material acquisition, production, use, disposal). A probabilistic approach allows selected variables to be assigned probability distributions and results in a probability of outcomes, thus providing a more complete understanding of the environmental and economic tradeoffs of alternatives.

For example, the life cycle impact of an electric vehicle versus a gasoline-powered vehicle can be evaluated to better understand all ramifications before selecting an alternative for the Air Force vehicle fleet.



## Contacts



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### Research Interests:

- Surfactant enhanced subsurface remediation
- Site characterization efforts using tracers
- Subsurface remediation technologies
- Environmental policy and mgmt issues
- Readiness and training

